

CLAIMS:

1. A knee joint prosthesis which comprises:

- a. a tibial component which has a bone contact surface for contacting a patient's resected tibia, and an opposite bearing surface, and a post extending from the bearing surface in a direction generally away from the bone contact surface, and
- b. a femoral component which has a bearing surface provided by medial and lateral condyles, and by a cam which is located between the condyles at or towards their posterior ends,

in which the condyles of the femoral bearing surface act against the bearing surface of the tibial component, directly or indirectly, during flexing of the knee and the cam on the femoral component acts against the post on the tibial component at high flex angles, and in which:

- a. the surface of the post which is contacted by the cam at high flex angles is convex when the post viewed generally perpendicular to the tibial bone contact and bearing surfaces, and
- b. the femoral bearing surface which is provided by the cam, where it contacts the convex surface of the post at high flex angles, is locally concave when viewed along the surface of the post which contacts the cam so that the area of contact between the post and the cam is greater at high flex angles than at lower flex angles.

2. A knee joint prosthesis as claimed in claim 1, in which the ratio of the contact area between the post and the cam at a flex angle of 150° to the said contact area when the flex angle is 90° is at least about 2.0, preferably at least about 2.5.

3. A knee joint prosthesis as claimed in claim 1, in which the cam is generally bar-like having a generally round cross-section when viewed along its length.

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4. A knee joint prosthesis as claimed in claim 2, in which the said round cross-section of the cam is interrupted in that region where the cam contacts the convex surface of the post at high flex angles so that, in that region, the cross-section is flattened or concave.
5. A knee joint prosthesis as claimed in claim 3, in which the cross-section of the cam is rounded at and towards its ends, and flattened or concave in a central region between its ends where it contacts the convex surface of the post at high flex angles.
6. A knee joint prosthesis as claimed in claim 2, in which the cam is formed integrally with a web which extends between the condyles, in contact with the cam at a point where the cam does not contact the post during articulation of the joint.
7. A knee joint prosthesis as claimed in claim 2, in which when the maximum area of the cam which contacts the post extends to a point which is not more than 1.5 mm from the ends of the cam where it joins the condyles.
8. A knee joint prosthesis as claimed in claim 1, in which the bearing surface on the cam is configured so that the surface its concavity is greater in the region where it acts against the post when the flex angle between the femur and the tibia is at least about 130° than in the region where it acts against the post at smaller flex angles.
9. A knee joint prosthesis as claimed in claim 1, in which the tibial component comprises a tibial implant part for implantation in the tibia, and a bearing part, which can be positioned between the tibial implant part and the femoral component.
10. A knee joint prosthesis as claimed in claim 1, in which the depth of the concave portion of the cam, measured relative to the surface of the cam at each side of the concave portion, is at least about 0.5 mm.

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11. A knee joint prosthesis as claimed in claim 1, in which the depth of the concave portion of the cam, measured relative to the surface of the cam at each side of the concave portion, is not more than 1.2 mm.
12. A knee joint prosthesis as claimed in claim 1, in which the radius of curvature at the anterior edge of the concave region is at least about 1.0 mm.
13. A knee joint prosthesis as claimed in claim 1, in which the radius of curvature at the at the anterior edge of the concave region is not more than about 3.0 mm.
14. A knee joint prosthesis as claimed in claim 1, in which the radius of curvature at the anterior edge is not more than about 6.0 mm.
15. A knee joint prosthesis as claimed in claim 1, in which the radius of curvature at the anterior edge is at least about 3.0 mm.